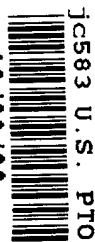


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jc583 U.S. PTO

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 PTO/SB/05 (4/98)
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 Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))

Attorney Docket No. 678-427 (P8990)

First Inventor or Application Identifier Soon-Jin Kim

Title METHOD AND SYSTEM FOR

Express Mail Label No. EL393560706US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO:

 Assistant Commissioner for Patents
 Box Patent Application
 Washington, DC 20231

1. ☒ * Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
2. ☒ Specification [Total Pages 12]
(preferred arrangement set forth below)
- Descriptive title of the Invention
 - Cross References to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to Microfiche Appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure
3. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets 2]
4. Oath or Declaration [Total Pages 2]
- a. ☒ Newly executed (original or copy)
- b. ☐ Copy from a prior application (37 C.F.R. § 1.63(d))
(for continuation/divisional with Box 16 completed)
- i. ☐ DELETION OF INVENTOR(S)
Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).

5. ☐ Microfiche Computer Program (Appendix)
6. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
- a. ☐ Computer Readable Copy
- b. ☐ Paper Copy (identical to computer copy)
- c. ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

7. ☒ Assignment Papers (cover sheet & document(s))
8. ☐ 37 C.F.R. § 3.73(b) Statement of Power of Attorney (when there is an assignee)
9. ☐ English Translation Document (if applicable)
10. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
11. ☐ Preliminary Amendment
12. ☒ Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
13. ☐ * Small Entity Statement(s) filed in prior application, Status still proper and desired (PTO/SB/09-12)
14. ☒ Certified Copy of Priority Document(s) (if foreign priority is claimed)
15. ☐ Other:

* NOTE FOR ITEMS 1 & 13: IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY FEES, A SMALL ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.27), EXCEPT IF ONE FILED IN A PRIOR APPLICATION IS RELIED UPON (37 C.F.R. § 1.28).

16. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No: _____

Prior application information: Examiner _____ Group / Art Unit: _____

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

17. CORRESPONDENCE ADDRESS

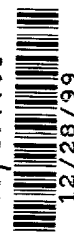
☐ Customer Number or Bar Code Label

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or ☒ Correspondence address below

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Name (Print/Type)	Paul J. Farrell	Registration No. (Attorney/Agent)	33,494
Signature	<i>Paul J. Farrell</i>	Date	12/28/99



95/82/21

PATENT

Atty. Docket No. 678-427 (P8990)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Assistant Commissioner
for Patents
Washington, D.C. 20231

UTILITY APPLICATION FEE TRANSMITTAL

Sir:

Transmitted herewith for filing is the patent application of

Inventor(s): Soon-Jin Kim

For: METHOD AND SYSTEM FOR TRANSMITTING CHARACTER
MESSAGES IN MOBILE COMMUNICATION TERMINAL DURING
CONVERSATION BY TELEPHONE

Enclosed are:

[X] 9 page(s) of specification

[X] 1 page(s) of Abstract

[X] 2 page(s) of claims

[X] 2 sheets of drawings [X] formal [] informal

[X] 2 page(s) of Declaration and Power of Attorney

[X] An Assignment of the invention to Samsung Electronics Co., Ltd.

CERTIFICATION UNDER 37 C.F.R. § 1.10

I hereby certify that this New Application Transmittal and the documents referred to as enclosed therein are being deposited with the United States Postal Service on this date December 28, 1999 in an envelope as "Express Mail Post Office to Addressee" Mail Label Number EL393560706US addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Daniel E. Tierney

(Type or print name of person mailing paper)


(Signature of person mailing paper)

- ☐ This application claims the benefit under 35 U.S.C. §119(e) of U.S. Provisional Application(s) No(s):

APPLICATION NO(S):

FILING DATE

____/____/____

____/____/____

____/____/____

____/____/____

☒ Certified copy of applications

Country

Appln. No.

Filed

Korea

60718

December 30, 1998

from which priority under Title 35 United States Code, § 119 is claimed
☒ is enclosed.

☐ will follow.

CALCULATION OF UTILITY APPLICATION FEE

For	Number Filed	Number Extra	Rate	Basic Fee \$760.00
TOTAL CLAIMS	5	0	x 18 =	\$0
INDEPENDENT CLAIMS	2	0	x 78 =	\$0
<input type="checkbox"/> Multiple Dep. Claim	0		260	\$0
			TOTAL \$760.00	

- ☐ Verified Statement of "Small Entity" Status Under 37 C.F.R. § 1.27. Reduced fees under 37 C.F.R. § 1.9(f) (50% of total) paid herewith \$.

*Includes all independent and single dependent claims and all claims referred to in multiple claims. See 37 C.F.R. § 1.75(c).


[X] The amount of \$40.00 for recording the attached Assignment is enclosed as a separate check.

[X] Two checks in the amount of \$760.00 \$40.00 to cover the [X] recording, [X] filing fee(s) are attached.

[] Charge fee to Deposit Account No. 04-1121. Order No. _____
TWO (2) COPIES OF THIS SHEET ARE ENCLOSED.

[X] Please charge any deficiency as well as any other fee(s) which may become due under 37 C.F.R. § 1.16 and 1.17, at any time during the pendency of this application, or credit any overpayment of such fee(s) to Deposit Account No. 04-1121. Also, in the event any extensions of time for responding are required for the pending application(s), please treat this paper as a petition to extend the time as required and charge Deposit Account No. 04-1121 therefor. TWO (2) COPIES OF THIS SHEET ARE ENCLOSED.

Date: December 28, 1999



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668337-036460

**METHOD AND SYSTEM FOR TRANSMITTING CHARACTER
MESSAGES IN MOBILE COMMUNICATION TERMINAL
DURING CONVERSATION BY TELEPHONE**

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a Short Message Service (SMS) of mobile communication terminals, and more particularly to a method for transmitting a character message in mobile communication terminals during a conversation by telephone.

2. Description of the Related Art

In general, Short Message Service (SMS) refers to a personal communication service of a kind which allows for communication of voice or character messages between mobile communication terminals of GSM (Global System for Mobile Communication), CDMA, or PCS types. Short Message Service is used, for example, when direct communication by telephone between users of mobile communication terminals is impossible or inconvenient. For example, the user of the mobile communication terminal of the calling and/or called party may be located where he or she has difficulty communicating by telephone, as in a conference hall, where carrying on a voice conversation would be disruptive, or where there are privacy concerns. Although a mobile

communication terminal of a called party may receive an incoming call from a mobile communication terminal of a calling party, the called party may have difficulty speaking directly by telephone with the calling party in response to the reception of the incoming call. Also, for example, where
5 an emergency call is required, although the mobile communication terminal of the calling party may transmit an outgoing call to the called party terminal to establish a speech path or a channel, the calling party may have difficulty in directly speaking by telephone with the called party. In such cases, the mobile communication terminals of the calling and
10 called parties may resort to transmitting and receiving character messages by using the SMS. Accordingly, the calling and called parties can communicate with each other using character messages even though those character messages are limited in length.

However, the prior art SMS makes it impossible to transmit or
15 receive a character message during the conversation by telephone between the mobile communication terminals of the calling and called parties. That is, SMS is a personal communication service for exchanging messages between the calling and called parties who have trouble speaking directly by telephone, but it is relatively limited because it is not
20 supported during a telephone conversation. For this reason, the users suffer an inconvenience of always having to access SMS always after hanging up the receiver while conducting a conversation by telephone when it becomes necessary to send a character message.

SUMMARY OF THE INVENTION

Therefore, an object of the invention is to provide a method for transmitting a character message in mobile communication terminals by using SMS during a telephone conversation.

5 In accordance with one embodiment of the present invention, a method for transmitting a character message in a mobile communication terminal during a conversation by telephone comprises the steps of setting the mobile communication terminal to a character message-
10 transmitting/receiving mode. The character message-transmitting/receiving mode is set while in a state in which a speech path has been established between the mobile communication terminal and a mobile communication terminal of a party other than the user. A character message is input at the mobile communication terminal by the user while in the character message-transmitting/receiving mode. Also
15 while in the character message-transmitting/receiving mode, the mobile communication terminal processes the written character message and transmits the written character message to the mobile communication terminal of the other party via the established speech path.

BRIEF DESCRIPTION OF THE DRAWINGS

20 The foregoing and other objects, features and advantages of the present invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings in which:

Fig. 1 is a block diagram illustrating the construction of an SMS

system of a mobile communication terminal which supports the present invention;

Fig. 2 is a block diagram illustrating the construction of a mobile communication terminal which supports the present invention; and

5 Figs. 3 is a flowchart illustrating transmission and reception of character messages conducted in the mobile communication terminal of Fig. 2 during a telephone conversation in accordance with a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

10 Referring to Fig. 1, when a character message originates from a mobile communication terminal 100, the character message is received by base station 102 and sent to a mobile exchange office 104. The mobile exchange office 104 informs the mobile communication terminal 100 of the reception of the character message and transmits the received character message to an SMS center 106 for further processing. SMS
15 center 106 is also connected to other mobile exchange offices (not shown), Public Switched Telephone Networks (PSTNs) and/or Integrated Service Digital Networks (ISDNs). The SMS center 106 receives a character message from one mobile exchange office or network, stores
20 the received character message in a digital form, and transmits the stored character message back to mobile exchange office 104, or to a different mobile exchange office, a PSTN or a ISDN for further transmission on to the destination mobile communication terminal, i.e., the terminal to which the originating mobile communication terminal 100 directed the character
25 message.

Fig. 2 is a block diagram illustrating the construction of a mobile communication terminal, such as mobile communication terminal 100, which supports the present invention. Controller 10 controls the overall operation of the mobile communication terminal 100. A memory 20 that
5 interfaces with controller 10 stores an operating program for controlling the overall operation of the mobile communication terminal. The memory 20 also stores input and output data generated during operation of the mobile communication terminal.

Character message data transmitted to the mobile communication terminal is also stored in the memory 20 at a predetermined memory location. Duplexer 30 conducts a signal separation for transmitting and receiving signals and transmits and receives signals to and from antenna AT (which transmits and receives signals to and from a base station). A
10 receiver 40 receives a radio signal received via the antenna AT and separated by the duplexer 30 under the control of the controller 10. The receiver 40 amplifies the received radio signal, and then outputs the amplified radio signal after filtering it. A transmitter 50 receives a radio
15 signal outputted from an audio section 60, which will be described hereinafter. Under the control of the controller 10, the transmitter 50 filters and amplifies the received radio signal. The radio signal from the transmitter 50 is sent to the duplexer 30 which, in turn, transmits the radio
20 signal from the mobile communication terminal via the antenna AT.

25 Audio section 60 modulates an audio signal, inputted thereto via a

microphone MC, into a radio signal for application to the transmitter 50 under the control of the controller 10. The audio section 60 also demodulates a radio signal supplied from the receiver 40, and outputs the demodulated radio signal as an audio signal to a speaker SP. The audio
5 section 60 also detects a ring signal generated from the base station and received via the receiver 40, and outputs it to a ringer.

A keypad 70, which includes numeral keys and other function keys, interfaces with the controller 10. Keypad 70 generates key data in
10 response to depressing of one or more of the keys by a user, which is input to the controller 10. The controller 10 uses the data input in carrying out various functions and operations. A display unit 80, which interfaces with the controller 10, includes a Liquid Crystal Display (LCD) adapted to display various information thereon. Key data generated from the keypad
15 70 and a variety of information signals generated from the controller 10 may also be supplied to the display unit 80, which displays the key data and information signals.

Fig. 3 is a flowchart illustrating the procedure for transmission and reception of character messages carried out in the mobile communication
20 terminal 100 during a telephone conversation in accordance with a preferred embodiment of the present invention. The procedure of Fig. 3 is programmed in the memory 20 and is executed by the controller 10 of Fig. 2.

The procedure for transmission and reception of character

messages carried out in the mobile communication terminal 100 is described hereinafter with reference to Figs. 1 to 3. For the description, two parties, one of who is the user of the mobile communication terminal 100, are registered to the Short Message Service (SMS) service. It is understood that, for the following description, both mobile communication terminals (and associated base stations and other interposed telecommunications architecture) are maintained in a state in which speech paths or channels for a conversation by telephone are still established when character messages are also transmitted.

As shown in Fig. 3, once established, the controller 10 maintains the conversation state between the mobile communication terminal 100 and the other party at step 300. The controller 10 then checks at step 302 whether or not mobile communication terminal 100 has received a character message from the mobile communication terminal of the other party. If not, the program proceeds to step 306, described below. If it is determined at step 302 that the mobile communication terminal 100 has received a character message via the receiver, the program proceeds to step 304, wherein the controller 10 displays the character message received via the receiver 40 on the display unit 80. Accordingly, the user of the mobile communication terminal 100 may read the content of the received character message during a conversation by telephone with the other party.

At step 306, if the user of mobile communication terminal 100 wants to transmit a character message to the other party, he can set a

character message-transmitting mode in the mobile communication terminal 100 by pressing a character message-transmitting mode key on keypad 70. The character message-transmitting mode enables transmission of a character message during a conversation by telephone.

5 The character message-transmitting mode key may be a separate key included in the keypad 70, or may alternatively be selected via a combination of existing keys on the keypad 70. After the controller 10 sets the character message-transmitting mode, it waits for the user to input a character message to be transmitted to the mobile communication terminal of the other party. The program proceeds to step 308 where the controller 10 receives a character message input by the user via the keys on the keypad 70.

10 The user of the mobile communication terminal 100 also selects a desired transmission rate for the character message written via the keypad 70. At step 310, the controller 10 sets the transmission rate for the character message to be the transmission rate selected. The program proceeds to step 312, where the controller 10 determines whether or not the user has provided an input (via keypad 70) signaling for transmission of the written character message. If it is detected at step 312 that there is input signaling for transmission of the written character message, the program proceeds to step 314 where the controller 10 controls the transmitter 50 to transmit the written character message to the mobile communication terminal of the other party. At subsequent step 316, the controller determines whether or not the conversation by telephone is terminated. If it is determined at step 316 that the conversation by

telephone is not terminated, the program returns to step 300, and repeats steps 300 to 316 during the telephone conversation.

As apparent from the above description, according to the present invention it is possible transmit and receive character messages between mobile communication terminals during a conversation by telephone. Therefore, even in the case where conversation between the parties is difficult or inconvenient, they can communicate with each other using character messages transmitted via a speech path for the telephone conversation.

While this invention has been described in connection with what is presently considered to be the most practical and preferred embodiment, it is to be understood that the invention is not limited to the disclosed embodiments, but is intended to cover various modifications within the spirit and scope of the appended claims.

WHAT IS CLAIMED IS:

1. A method for transmitting a character message in a mobile communication terminal during a conversation by telephone, comprising the steps of:

5 setting the mobile communication terminal to a character message-transmitting/receiving mode while in a state in which a speech path has been established between the mobile communication terminal and a mobile communication terminal of a party other than the user; and
10 inputting a character message while in the character message-transmitting/receiving mode, processing the written character message and transmitting the written character message to the mobile communication terminal of the other party via the established speech path in the character message-transmitting/receiving mode.

15 2. The method in accordance with claim 1, further comprising the step of:

 returning the mobile communication terminal of the user to a phone mode after the transmission of the character message to the mobile communication terminal of the other party.

20 3. The method in accordance with claim 1, wherein the character message input during the character message-transmitting/receiving mode is selected among character messages previously written and stored in a registered state.

4. The method in accordance with claim 1, including the additional step of receiving a character message from the mobile communication terminal of the other party via the established speech path while the mobile communication terminal is in the character message transmitting/receiving mode, the mobile communication terminal displaying the received character message.

5. A method for receiving a character message in a mobile communication terminal during a conversation by telephone, comprising the steps of:

establishing a speech path between the mobile communication terminal and a mobile communication terminal of another party;

receiving a character message from the mobile communication terminal of the other party via the speech path; and processing and displaying the received character message.

ABSTRACT OF THE DISCLOSURE

A method for transmitting a character message in a mobile communication terminal during a conversation by telephone comprises the steps of setting the mobile communication terminal to a character message-transmitting/receiving mode. The character message-transmitting/receiving mode is set while in a state in which a speech path has been established between the mobile communication terminal and a mobile communication terminal of a party other than the user. A character message is input at the mobile communication terminal by the user while in the character message-transmitting/receiving mode. Also while in the character message-transmitting/receiving mode, the mobile communication terminal processes the written character message and transmits the written character message to the mobile communication terminal of the other party via the established speech path.

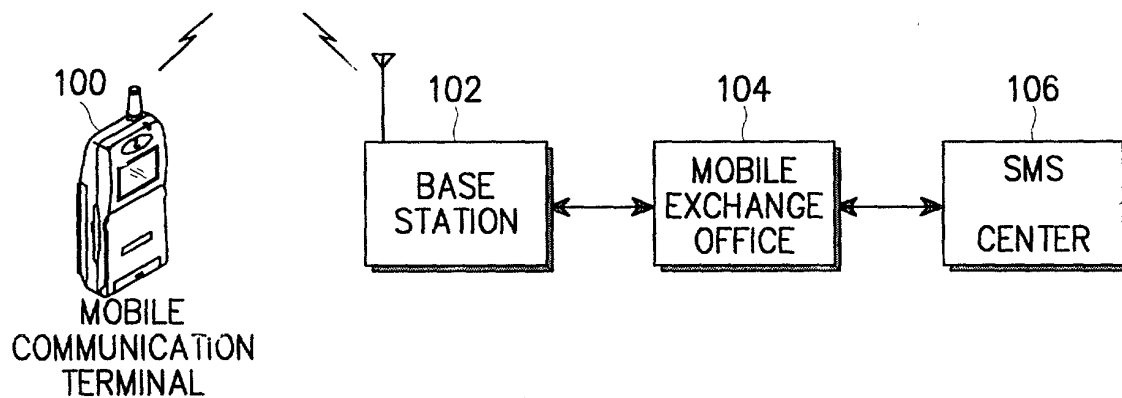


FIG. 1

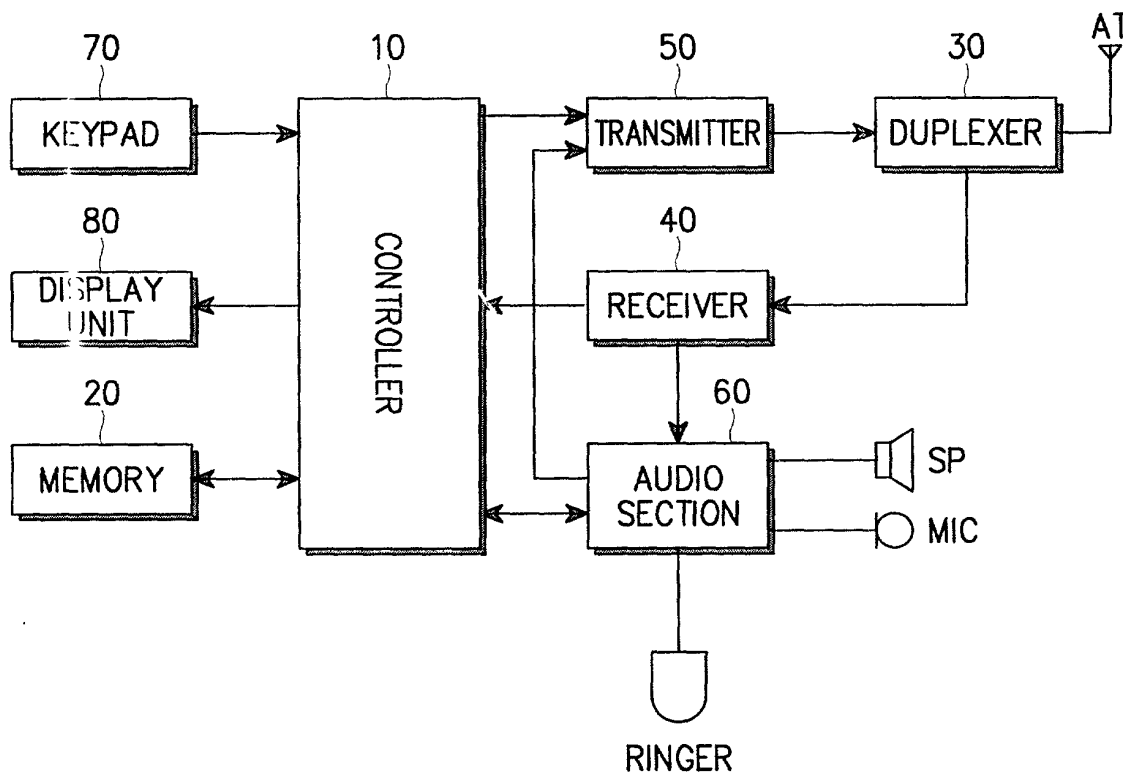


FIG. 2

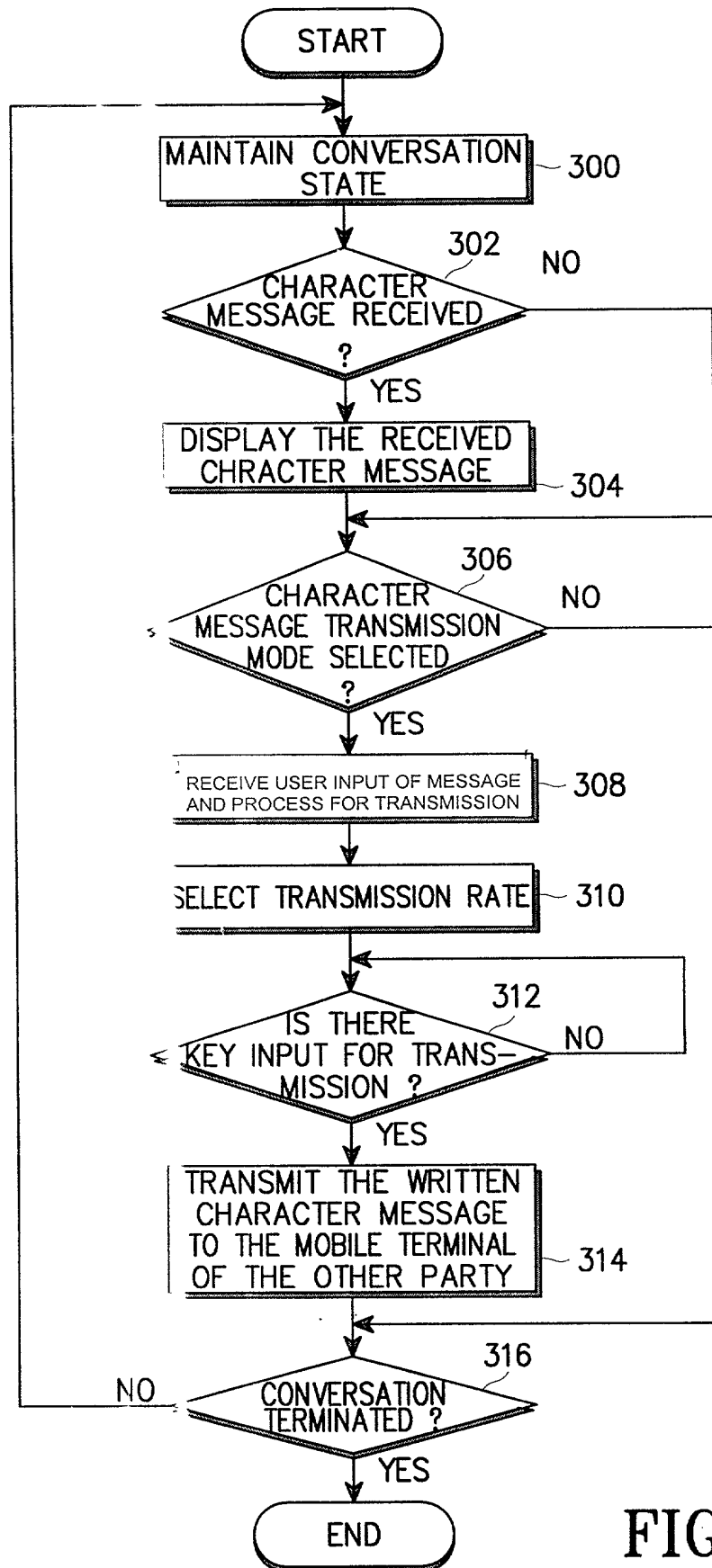


FIG. 3

PTO/SB/01 (8/95)

DECLARATIONDocket No. 678-427 (P8990)

AS A BELOW NAMED INVENTOR, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe that I am the original, first and sole (if only one name is listed below), or an original, first and joint inventor (if plural names are listed below), of the subject matter which is claimed and for which a patent is sought on the invention entitled:

TITLE: METHOD AND SYSTEM FOR TRANSMITTING CHARACTER MESSAGES IN MOBILE
COMMUNICATION TERMINAL DURING CONVERSATION BY TELEPHONE

the specification of which either is attached hereto or indicates an attorney docket no. 678-427 (P8990) or:

☐ was filed in the U.S. Patent & Trademark Office on _____ and assigned Serial No. _____,

☐ and (if applicable) was amended on _____

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to patentability and to the examination of this application in accordance with Title 37 of the Code of Federal Regulations §1.56. I hereby claim foreign priority benefits under Title 35, U.S. Code §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT international application which designated at least one country other than the United States, or §119(e) of any United States provisional application(s), listed below and have also identified below any foreign applications for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

<u>1998-60718</u>	<u>Korea</u>	<u>30/12/1998</u>	Priority Claimed:
(Application Number)	(Country)	(Day/Month/Year filed)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<u> </u>	<u> </u>	<u> </u>	Yes <input type="checkbox"/> No <input type="checkbox"/>
(Application Number)	(Country)	(Day/Month/Year filed)	

I hereby claim the benefit under Title 35, U.S. Code, §120, of any United States application(s), or §365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application(s) in the manner provided by the first paragraph of Title 35, U.S. Code, §112, I acknowledge the duty to disclose information material to patentability as defined in Title 37, The Code of Federal Regulations, §1.56(a) which became available between the filing date of the prior application and the national or PCT international filing date of this application:

<u> </u>	<u> </u>	<u> </u>
(Application Serial Number)	(Filing Date)	(STATUS: patented, pending, abandoned)
<u> </u>	<u> </u>	<u> </u>
(Application Serial Number)	(Filing Date)	(STATUS: patented, pending, abandoned)

I hereby appoint the following attorneys: PETER G. DILWORTH, Reg. No. 26,450; ROCCO S. BARRESE, Reg. No. 26,253; DAVID M. CARTER, Reg. No. 30,949; PAUL J. FARRELL, Reg. No. 33,494; PETER DELUCA, Reg. No. 32,978; JEFFREY S. STEEN, Reg. No. 32,009; ADRIAN T. CALDERONE, Reg. No. 31,748; GEORGE M. KAPLAN, Reg. No. 28,375; JOSEPH W. SCHMIDT, Reg. No. 38,920; RAYMOND E. FARRELL, Reg. No. 34,816; RUSSELL R. KASSNER, Reg. No. 36,183; CHRISTOPHER G. TRAINOR, Reg. No. 39,517; GEORGE LIKOURCZOS, Reg. No. 40,067; JAMES M. LOEFFLER, Reg. No. 37,873; EDWARD C. MEAGHER, Reg. No. 41,189; SUSAN L. HERR, Reg. No. 37,350; MICHAEL P. DILWORTH, Reg. No. 37,311; PETER B. SORELL, Reg. No. 44,349; and GLENN D. SMITH, Reg. No. 42,158, each of them of DILWORTH & BARRESE, 333 Earle Ovington Boulevard, Unionsdale, New York 11553 to prosecute this application and to transact all business in the U.S. Patent and Trademark Office connected therewith and with any divisional, continuation, continuation-in-part, reissue or re-examination application, with full power of appointment and with full power to substitute an associate attorney or agent, and to receive all patents which may issue thereon, and request that all correspondence be addressed to:

Page 1 of 2

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I HEREBY DECLARE that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 U.S. Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FULL NAME OF FIRST OR SOLE INVENTOR: Soon-Jin KIM Citizenship Korea
Inventor's signature: Soon-Jin KIM Date: December 27, 1999
Residence & Post Office Address: 39, Songjong-dong, Kumi-shi, Kyongsangbuk-do, Korea

FULL NAME OF SECOND JOINT INVENTOR: _____ Citizenship _____
Inventor's signature: _____ Date: _____
Residence & Post Office Address: _____

FULL NAME OF THIRD JOINT INVENTOR: _____ Citizenship _____
Inventor's signature: _____ Date: _____
Residence & Post Office Address: _____

FULL NAME OF FOURTH JOINT INVENTOR: _____ Citizenship _____
Inventor's signature: _____ Date: _____
Residence & Post Office Address: _____

FULL NAME OF FIFTH JOINT INVENTOR: _____ Citizenship _____
Inventor's signature: _____ Date: _____
Residence & Post Office Address: _____

FULL NAME OF SIXTH JOINT INVENTOR: _____ Citizenship _____
Inventor's signature: _____ Date: _____
Residence & Post Office Address: _____